

NEW NORTH AMERICAN SPECIES
OF NEMOGNATHA AND ZONITIS

(Coleoptera, Meloidae)

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Descriptions of the following new species are being published at this time in order to have names available for larval studies now in progress. The genus *Nemognatha* is treated here as belonging to the tribe Nemognathini which also includes the genera *Tricrania* and *Hornia* in North America. These three genera have the median tube of the male terminalia entirely membranous, a specialization not found among other meloids of this fauna. The genera *Zonitis* and *Gnathium* are included in the tribe Zonitini which exhibits the primitive condition of the aforementioned structure. Here the median tube is a heavily sclerotized and bilobed structure. By these definitions the species included in LeConte's (1880) key to the genus *Nemognatha* would remain in this genus with the exceptions of *immaculata* LeConte (= *Z. sayi* Wickham), *punctipennis*, *cribricollis* and *vittigera*. These species belong in the genus *Zonitis* near *Z. perforata* Casey, *Z. dunniana* Casey, *Z. atripennis* Say and *Z. bilineata* Say. *Z. flavida* LeConte is a well-marked western subspecies of *atripennis* and is not deserving of specific rank.

Zonitis, as considered here, is divisible into two species groups. The first and most typical includes those species listed in the previous paragraphs with the possible exception of *atripennis*. The second includes *longicornis* Horn, *vittipennis* Horn, *schaefferi* Blatchley, *arizonica* Van Dyke, *sulcicollis* Blatchley, *vigilans* Fall and *martini* Fall. *Z. vermiculatus* Schaeffer, although somewhat distinct, may be placed provisionally with the first group.

The structural modifications by which the *longicornis* group may be defined are: eyes strongly produced beneath the head, usually separated by less than the length of the second antennal segment; pronotum subcampanuliform; antennae setiform; male with fifth sternite deeply emarginate and with a distinct median impression; female with fifth sternite strongly emarginate, sixth sternite deeply triangularly emarginate; maxillae never produced. This combination of characters indicates the distinctness of this section of the

genus and might well be used to establish a separate subgenus. However, with the present confused status of these groups from a world standpoint such a move would seem premature at this time.

Zonitis aureus MacSwain, new species

Body surface shining. Color yellow, except antennae, apices of femora, tibiae and greater part of tarsi which are piceous, extreme base of first segment of middle and posterior tarsus pale. Length 7.5 — 9 mm.

Male: Head short, distance from vertex to apex of labrum equal to distance across tempora; surface smooth shining, sparsely punctate and pubescent, with a few fine punctures and short pale setae, setae on clypeus and labrum longer; antennae long, three times as long as pronotum, slightly tapered to apex, filiform, successive lengths of antennal segments in millimeters: .44, .37, .52, .52, .54, .54, .52, .50, .46, .48, .56, sixth segment almost three times as long as wide; mandibles strongly angulate at middle; maxillae not produced beyond mandibles. *Thorax* feebly punctate and pubescent throughout; pronotum strongly transverse, one-fourth wider than long, lateral margins evenly and broadly rounded, widest just in front of middle, surface smooth, shining, almost impunctate, a few, short, pale setae on disc, setae somewhat more dense on posterior margin, disc evenly rounded; elytra without distinct punctures, feebly rugose, somewhat transparent, with a few, short, pale setae. *Legs* with posterior tibial spurs moderately thickened, equal in length, outer spur one and one-half times as broad as inner spur, obliquely truncate near apex, inner spur flattened, parallel-sided, stick-like; tarsal claws with 13 or 14 spines in inner row. *Abdomen* with surface shining, a few, long, pale, scattered setae; fifth sternite broadly emarginate, sixth sternite deeply cleft.

Holotype male (Calif. Acad. Sci., Ent.): GRANT LAKE, MONO Co., CALIFORNIA, on flowers of *Chrysothamnus* sp. August 3, 1950 (J. W. MacSwain); and four *paratypes*, one same data as holotype, three same locality as holotype August 5, 1948 (P. D. Hurd and J. W. MacSwain).

This attractive species is morphologically similar to *vermiculatus* Schaeffer but may be separated by its color, pronotal shape, sparse punctation and pubescence.

Zonitis maculicollis MacSwain, new species

Body surface feebly shining. Color rufo-testaceous, except antennae, elytra, legs, portions of metasternum, small spot between eyes and paired spots on each side of midline in anterior third of pronotal disc which are piceous. Length, 6 — 11 mm.

Male: Head elongate, distance from vertex to apex of labrum considerably greater than distance across tempora; surface shining, with moderately coarse to fine punctures, punctures moderately dense between eyes, finer and sparser on vertex, with short, pale pubescence, setae longer on clypeus and labrum; eyes moderately large, separated in front by a distance slightly greater than length of sixth antennal segment, beneath by a distance equal to sixth antennal segment; antennae extremely long, three and one-half times as long as pronotum, setiform, successive lengths of antennal segments in millimeters: .58, .47, .63, .73, .73, .73, .73, .70, .63, .58, .73, sixth segment over four times as long as wide; mandibles slightly and evenly curved to apex, maxillae produced beyond mandibles a distance equal to length of mandibles. *Thorax* uniformly, finely, and densely punctate except on pronotum; pronotum, subcampanuliform, about as long as width across base, finely, but only moderately, densely and somewhat irregularly punctured, with extremely short, pale, erect setae, surface evenly rounded except median line which is sulcate posteriorly; elytra densely and moderately coarsely punctate, with fine, short, pale, appressed pubescence. *Legs* with posterior tibial spurs thickened, obliquely truncate in lateral aspect, subacute and subequal; tarsal claws with inner row of spines decreasing in number from anterior pair to posterior (15, 13, 11). *Abdomen* with surface moderately shining, with fine, dense punctures and moderately long, pale, dense pubescence; fifth sternite broadly emarginate, with a sharp, median impression; sixth sternite deeply cleft.

Female similar to male but with fewer spines on tarsal claws (8, 8, 8); sixth sternite with a deep U-shaped emargination.

Holotype male (Calif. Acad. Sci., Ent.): TRACY, SAN JOAQUIN Co., CALIFORNIA, on flowers of *Frankenia grandifolia* C. & S., July 29, 1949 (J. W. MacSwain); *allotype* female (Calif. Acad. Sci., Ent.) same data as holotype; and 85 *paratypes* same data as holotype.

This species is related to *Z. vigilans* Fall and belongs with that species in the *longicornis* group. However, it may be separated by its darker color, much smaller and more distant eyes, larger head and pronotum, and details of punctation. The eyes in this species are smaller and more distant than in *Z. martini* Fall. The coloration varies somewhat in the type series with the maculations of the head and pronotum being absent in a few specimens while in others portions of the abdomen are suffused with brown.

Zonitis propinqua MacSwain, new species

Body surface feebly shining. Color testaceous, except antennae, maxillary prolongations, maxillary palpi, last segment of labial

palpi, apices of femora, tibiae except inner basal face and tarsi which are piceous. Length 10 — 18 mm.

Male: Head moderately elongate, distance from vertex to apex of labrum greater than distance across tempora; surface feebly shining, with fine and extremely dense punctures, clothed with moderately long, pale pubescence; antennae robust, two and one-half times as long as pronotum, segments cylindrical, successive lengths of antennal segments in millimeters: .74, .51, .66, .74, .66, .66, .58, .66, .55, .51, .70, sixth segment scarcely twice as long as wide; mandibles slightly and evenly convex to apex; maxillae produced beyond mandibles a distance one and one-fourth the length of the mandibles, prolongations modified as a sucking organ. Thorax uniformly, finely, and very densely punctured, clothed with moderately long, pale, erect pubescence, feebly shining; pronotum considerably wider than long, transverse, lateral margins feebly convex; elytra finely and very densely punctured, punctures distinct, pubescence moderately long, pale, and erect, visible macroscopically. *Legs* with posterior tibial spurs thickened, subequal, outer spur slightly heavier than inner, both obliquely truncate in lateral aspect, apically moderately acute; tarsal claws with inner row of spines decreasing in number from anterior pair to posterior (16, 14, 11). *Abdomen* with surface feebly shining, finely and densely punctate, with moderately long, pale, semi-appressed pubescence; fifth sternite with a distinct, short, median impression; sixth sternite deeply cleft.

Female similar to male but with a different number of spines on the tarsal claws (15, 15, 15); sixth sternite with a moderately deep, V-shaped emargination.

Holotype male (Calif. Acad. Sci., Ent.): ALPINE, BREWSTER CO., TEXAS, July 2, 1942 (E. C. Van Dyke); *allotype* female (Calif. Acad. Sci., Ent.): same data as holotype; and 16 *paratypes* same locality as holotype and following dates and collectors: 2, May 19, 1937 (K. Maehler), 1, July 1, 1942 (H. A. Scullen), 2, July 1, 1942 (E. C. Van Dyke), 2, July 2, 1942 (E. C. Van Dyke), 3, July 7, 1942 (H. A. Scullen), 5, July 8, 1942 (E. C. Van Dyke), 1, July 11, 1946 (M. Marquis).

The following additional specimens of this species were examined but not included in the type series: 2, 5 mi. E. Alpine, Brewster Co., Texas, June 5, 1942 (E. S. Ross), 1, Marathon, Brewster Co., Texas, July 7, 1942 (E. C. Van Dyke), 1, Chisos Mts., Brewster Co., Texas, July 7, 1946 (E. C. Van Dyke), 2, Davis Mts., Jeff Davis Co., Texas, July 11, 1946 (E. C. Van Dyke), 2, White Rose Canyon, Jeff Davis Co., Texas, June 18, 1947 (A. T. McClay), 1, Uvalde, Uvalde Co., Texas, June 15, 1930 (J. O. Martin), 9.

Pecos, Reeves Co., Texas, June 18-19, 1947 (A. T. McClay), 1, Loving, Eddy Co., New Mexico, June 5, 1945 (J. W. MacSwain), 3, San Jon, Quay Co., New Mexico, July 5, 1938 (R. P. Allen), 2, Mt. Hope, Sedgwick Co., Kansas, July 22, 1909 (F. E. Blaisdell) and 1, Onaga, Pottawatomie Co., Kansas, June 19, 1923 (Crevecoeur).

This species is closely related to *Z. vittigera* (LeConte) but differs in its lighter color, denser pubescence, shorter maxillary prolongations and the lack of elytral vittae. In addition, it has a more southerly distribution although occurring principally in June and July as does *vittigera*. These two species are related to *Z. perforata* Casey which has short maxillary prolongations, as in *propinqua*, and reddish-brown elytra which are coarsely but only moderately densely punctured.

Nemognatha cantharidis MacSwain, new species

Body surface shining, elytra dull. Color: head piceous; antennae, palpi, maxillae, metasternum, and legs dark brown, nearly piceous; pro-, mesothorax and abdomen orange; elytra flavo-testaceous with dark piceous suffusion near humeri and apices, coloration variable, rarely with all of elytra, except extreme outer margin, piceous. Pubescence golden. Length 9 — 11 mm.

Male: Head elongate; tempora evenly rounded; surface moderately, coarsely and densely punctured, a narrow, median, sparsely punctate area extending from between eyes to vertex; antennae filiform, less than three times length of pronotum, successive lengths of antennal segments in millimeters: .51, .33, .51, .53, .48, .48, .44, .44, .37, .37, .50, sixth segment twice as long as wide; mandibles elongate, moderately, strongly, and obtusely convex beyond middle; maxillae produced beyond mandibles a distance equal to one and one-half times length of pronotum, clothed with appressed scale-like setae. *Thorax*, except pronotum, finely and densely punctured; pronotum moderately and coarsely punctured; punctures moderately, but irregularly, dense, pronotum as long as wide, widest just in front of middle, rapidly narrowed to apex, slightly narrowed to base, disc with a faint median impression, surface feebly sulcate on each side of midline in front of middle; scutellum with a sharp, deep impression at extreme base, usually partially hidden under posterior margin of pronotum; elytra densely punctate, most punctures confluent, clothed with dense, appressed, golden pubescence. *Legs* with posterior tibial spurs equal, broad, obtuse; tarsal claws with spines of inner row decreasing in number from anterior pair to posterior (14, 12, 10). *Abdomen* finely and moderately densely punctured; fifth sternite feebly and broadly convex, sixth sternite deeply cleft.

Female similar to male but with a different number of spines on the tarsal claws (10, 10, 10); sixth sternite evenly transverse.

Holotype male (Calif. Acad. Sci., Ent.): BENNETT WASH NEAR PARKER DAM, SAN BERNARDINO CO., CALIFORNIA, on flowers of *Encelia* sp., February 24, 1951 (C. D. McNeill and P. A. Adams); *allotype* female (Calif. Acad. Sci., Ent.) same data as holotype; and 15 *paratypes* as follows: 1, same data as holotype, 5, 3 mi. S. Palo Verde, Imperial Co., California, on flowers of *Geraea canescens*, April 8, 1949 (P. D. Hurd), 1, Ocotillo, San Diego Co., California, April 6, 1949 (P. D. Hurd), 6, 5 mi. S. E. Ocotillo, San Diego Co., California, on flowers of *Pluchea sericea*, April 23, 1950 (J. W. MacSwain), and 1, Palm Springs, Riverside Co., California, April 16, 1916 (J. O. Martin).

The following additional specimens of this species were examined but are not included in the type series: 5, 9 mi. up Arroyo Santa Maria, Baja California, Mexico, March 29, 1950 (G. A. Marsh).

N. cantharidis is related to *N. zonitoides* Duges but may be distinguished by its larger size, coloration, pubescence and the shape of its pronotum which is not campanuliform as in *zonitoides*.

Nemognatha hurdi MacSwain, new species

Body surface feebly shining. Color flavo-testaceous to testaceous with following exceptions which are dark brown or piceous: antennae, palpi, mandibular apices, maxillae, meso- and metasternum, scutellum and part or all of first five abdominal segments; elytra with apex piceous and a piceous vitta near lateral third which tapers markedly before humeri. Pubescence short and pale, sparse or dense. Length 10 — 13 mm.

Male: *Head* moderately elongate, subtriangular, tempora diverging behind the eyes, vertex tumid; surface finely and evenly densely punctured, macroscopically glabrous; antennae filiform, less than two and one-half times length of pronotum, segments not flattened, successive lengths of antennal segments in millimeters: .66, .39, .70, .55, .58, .58, .44, .41, .41, .39, .55, sixth segment slightly over twice as long as wide; mandibles robust, strongly curved near middle; maxillae produced beyond mandibles a distance one-fourth greater than length of pronotum, clothed with short semi-erect setae. *Thorax*, except pronotum, finely and densely punctured, clothed with moderately long, pale setae; pronotum only one-sixth wider than long, margins widest in front of middle, converging slightly toward base, basal

angles expanded, surface finely and moderately densely punctured, most punctures separated by scarcely their own diameter, disc evenly rounded with a fine median impression, macroscopically glabrous; scutellum with fine regular punctures, feebly sulcate; elytra densely punctulate, punctures distinct near humeri, confluent elsewhere, clothed with fine, short, pale, dense, appressed pubescence, giving elytra a dull appearance. *Legs* with posterior tibial spurs unequal, outer spur somewhat thickened from base to apex, apex broadly rounded, inner spur stick-like, apically somewhat acute; tarsal claws with inner row of spines decreasing in number from anterior pair to posterior (16, 14, 12). *Abdomen* with surface feebly shining, finely and densely punctured, small triangular median areas of dense pubescence on third and fourth sternites, fifth sternite evenly and slightly convex, sixth deeply cleft.

Female similar to male but with a different number of spines on the tarsal claws (10, 10, 10); fifth sternite with a small feeble emargination, the sixth not visible.

Holotype male (Calif. Acad. Sci., Ent.): TESLA, ALAMEDA CO., CALIFORNIA, on flowers of *Grindelia* sp., September 18, 1945 (J. W. MacSwain); *allotype* female (Calif. Acad. Sci., Ent.) same data as holotype; and 7 *paratypes*, 1, same data as holotype, 5 same locality as holotype, October 6, 1941 (J. W. MacSwain).

The following additional specimens of this species were examined but are not included in the type series: 1, 2 mi. W. Antioch, Contra Costa Co., California, September 12, 1945 (J. W. MacSwain), 1, Marsh Creek Canyon, Contra Costa Co., California, reared from cell of *Melissodes* sp. collected February 18, 1947 (G. E. Bohart and J. W. MacSwain), and 1, Mormon Bar, Mariposa Co., California, September 6, 1938 (T. G. H. Aitken).

This species is distinguished by its short, pale pubescence, punctulate elytra, coloration, antennae, and tibial spurs. Its affinities are with *N. dichroa* LeConte. It is most often collected in association with the much commoner *N. apicalis* LeConte.

Nemognatha soror MacSwain, new species

Body surface shining. Six discontinuous coloration patterns are known; coloration of three commonest forms (condition of type first) with approximate frequency of each form expressed in per cent; black, head, pronotum and apex of abdomen rufo-testaceous (45%), entirely black (25%), entirely brown (25%). Pubescence usually black moderately dense to sparse. Length 7.5 — 15 mm.

Male: Head short, distance from vertex to apex of labrum less than distance across tempora, tempora diverging somewhat behind the eyes, vertex not tumid; surface moderately coarsely and moderately densely punctured, punctures with long, black, erect setae, a small, median impression between the eyes; antennae filiform, serrate, segments somewhat flattened, slightly more than twice as long as pronotum, successive lengths of antennal segments in millimeters: .48, .39, .51, .51, .44, .44, .41, .41, .38, .38, .51, sixth segment slightly less than twice as long as wide; mandibles robust, moderately curved near middle; maxillae produced beyond mandibles a distance equal to the length of the pronotum, clothed with short, semi-erect hairs. *Thorax*, except pronotum, finely and moderately densely to densely punctured; pronotum finely and moderately sparsely punctured, most punctures separated by at least their own diameter, punctures on disc set with moderately long, black setae which are inclined anteriorly, pronotum transverse, parallel-sided, subrectangular, one-third wider than long, disc without a median impression, a small, irregular, impunctate area near each side just in front of middle; scutellum feebly sulcate; elytra finely and moderately densely punctate, surface rugose, clothed with short, moderately dense, semi-appressed, black pubescence. *Legs* with posterior tibial spurs unequal, outer spur slightly thicker than inner and obliquely truncate, inner spur stick-like, apically acute; tarsal claws with inner row of spines decreasing in number from anterior pair to posterior (16, 14, 12). *Abdomen* with surface shining, finely and moderately densely punctured, clothed with long, dark, semi-appressed pubescence; fourth and anterior part of fifth sternites with a median patch of dense pubescence; fifth sternite moderately and evenly convex, with a distinct median impression on posterior margin; sixth sternite deeply cleft.

Female similar to male but with a different number of spines on the tarsal claws (10, 10, 10); fifth sternite with a small feeble median emargination, the sixth not visible.

Holotype male (Calif. Acad. Sci., Ent.): 4 MI. W. QUINCY, PLUMAS CO., CALIFORNIA, on flowers of *Achillea* sp., June 24, 1949 (J. W. MacSwain); *allotype* female (Calif. Acad. Sci., Ent.) same data as holotype; and 90 *paratypes* (various color forms) same locality as holotype, various dates from June 19, 1949 to July 3, 1949 by following collectors (P. D. Hurd, J. W. MacSwain, A. S. Deal, R. C. Bechtel, W. F. Ehrhardt, L. W. Isaak, E. I. Schlinger, H. A. Hunt, Claude I. Smith, D. Cox and L. L. Jensen).

A number of specimens from areas adjacent to the type locality were studied as well as the two following collections; 95 specimens Pinnacles, San Benito Co., California on flowers of *Achillea*, May 25, 1941 (J. W. MacSwain) and 15 specimens Princeton, British Columbia, June 16, 1921 and July 30, 1922 (R. Hopping).

This species belongs with the *dubia-dichroa* complex. *Soror* can be recognized by the very short maxillae, which are several times as long in the other species, and the transverse pronotum as well as by the details of the punctation and pubescence.

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